

ABSTRACT

IGNITION SYSTEM FOR A HIGH-FREQUENCY
HIGH-INTENSITY DISCHARGE LAMP SYSTEM

An ignition system for a high-frequency high-intensity discharge lamp system of a type used for location-lighting during filming or other entertainment venues includes a transformer with a pair of secondary windings each having a primary winding closely interwound. The secondary windings, which are connected between the steady-state power source and the discharge lamp, are wound for producing opposing magnetic fields with substantial flux cancellation. The primary windings are wound to produce voltage amplification and connected to an ignition circuit adapted to produce high-voltage ignition spikes to turn on the discharge lamp. The system also includes a resonant circuit between the steady-state power source and the transformer. The ignition and resonant circuits are temporarily energized to produce a voltage for igniting the lamp. The advantage of secondary windings with opposing magnetic fields is that a sufficient turns ratio is present to allow the transformer to operate effectively during ignition, while at the same time the opposing magnetic fields result in a low impedance with a reduction in both heat and inductive loss during steady-state operation of the lamp system.

(Figure 3 for publication)